UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/043,884	01/09/2002	Cynthia Furse	2008.USU.NP	6280

26986 7590 09/25/2003

MORRISS O'BRYANT COMPAGNI, P.C.
136 SOUTH MAIN STREET
SUITE 700
SALT LAKE CITY, UT 84101

EXAMINER
BARAN, MARY C

ART UNIT	PAPER NUMBER
2857	

DATE MAILED: 09/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/043,884	FURSE ET AL.	
	Examiner	Art Unit	
	Mary Kate B Baran	2857	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 March 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 January 2002* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Drawings

1. The informal drawings filed in this application are acceptable for examination purposes. When the application is allowed, applicant will be required to submit new formal drawings.

Specification

2. The disclosure is objected to because of the following informalities:

(a) On page 3 line 7, "re used" should be – re-used –.

(b) On page 5 line 5, "measure" should be – measures –.

(c) On page 5 line 8, "is less generally" should be – is generally less –.

(d) On page 5 lines 14-15, "that relatively smaller" should be – that is relatively smaller –.

(e) On page 12 line 18, "N-Uknows" should be – N-Unknowns –.

(f) On page 13 line 13, "cold" should be – could –.

(g) On page 14 line 1, "envisioned this range" should be – envisioned that this range –.

(h) On page 14 line 16, "divider 106 is this" should be – divider 106 in this –.

(i) On page 27 line 3, "lives" should be – live –.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Franchville (U.S. Patent No. 5,994,905).

Referring to claim 1, Franchville teaches a method for determining integrity of a cable under test utilizing a cable testing system that uses frequency domain reflectometry (FDR) (see Franchville, column 6 lines 32-42), said method comprising the steps of: coupling the FDR cable testing system to a connecting end of the cable under test (see Franchville, column 6 lines 32-42); transmitting at least one input signal from the FDR cable testing system to the cable under test (see Franchville, column 7 lines 15-17); receiving a reflected input signal from the cable under test (see Franchville, column 7 lines 22-25); mixing the at least one input signal and the reflected input signal to generate a DC signal (see Franchville, column 9 lines 29-34); and processing the DC signal to thereby obtain data regarding integrity of the cable under test (see Franchville, column 12 lines 18-25).

Referring to claim 2, Franchville teaches obtaining data regarding integrity of the cable under test further comprises the step of determining impedance of the cable under test at a point of termination thereof (see Franchville, column 12 lines 18-25).

Referring to claim 22, Franchville teaches a method for determining characteristics of a cable under test utilizing a cable testing system that uses principles of frequency domain reflectometry (FDR) (see Franchville, column 6 lines 32-42), said method comprising the steps of: providing a signal generator (see Franchville, column 7 lines 15-17) for generating a sine wave (see Franchville, column 17 lines 14-20), a power divider coupled to signal generator at an input (see Franchville, column 8 line 54 - column 9 line 7 and column 7 lines 29-40), and to a mixer and the cable under test at two outputs, wherein the mixer is also coupled at another input to the cable under test for receiving a reflected sine wave (see Franchville, column 17 lines 14-20) therefrom (see Franchville, column 9 lines 5-7), and at an output to an input if an analog to digital (A/D) converter, wherein the A/D converter is coupled at an output to a processor (see Franchville, column 9 lines 47-52); transmitting a sine wave from the signal generator to the cable under test and to the mixer via the power divider (see Franchville, column 17 lines 14-20); receiving a reflected sine wave from the cable under test at the mixer (see Franchville, column 17 lines 14-20); mixing the sine wave and the reflected sine wave to generate a DC signal from the mixer (see Franchville, column 9 lines 29-34); processing the DC signal to thereby obtain data regarding impedance and length of the cable under test (see Franchville, column 8 lines 24-28); changing a frequency of the sine wave (see Franchville, column 12 lines 18-25); performing steps (2) though (6) a predetermined number of times to thereby generate a plurality of DC signals (see Franchville, column 9 lines 22-25); and determining impedance and length of the cable under test utilizing the plurality of DC signals (see Franchville, column 8 lines 24-28).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Franchville (U.S. Patent No. 5,994,905) in view of Richardson (U.S. Patent No. 6,016,464).

Referring to claim 3, Franchville teaches all the features of the claimed invention except for determining if the cable under test has a short circuit at the point of termination, wherein a short circuit is indicated by a small impedance value at the point of termination; and determining if the cable under test has an open circuit at the point of termination, wherein an open circuit is indicated by a large impedance.

Richardson teaches determining if the cable under test has a short circuit at the point of termination, wherein a short circuit is indicated by a small impedance value at the point of termination (see Richardson, column 7 lines 14-25); and determining if the cable under test has an open circuit at the point of termination, wherein all open circuit is indicated by a large impedance value at the point of termination (see Richardson, column 7 lines 1-13).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Franchville to include the teachings of Richardson because using impedance to determine the end point allows the skilled artisan to remotely and

more accurately determine the length (see Richardson, column 2 lines 34-39).

Referring to Claim 4, Franchville teaches determining a length of the cable under test from the connecting end to the point of termination (see Franchville, column 8 lines 24-28).

5. Claims 5-7 and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Franchville (U.S. Patent No. 5,994,905) in view of Richardson (U.S. Patent No. 6,016,464) and further in view of Bjork et al. (U.S. Patent No. 5,128,619) (hereinafter Bjork).

Referring to claim 5, Franchville teaches all the features of the claimed invention except for determining, a length of the cable under test further comprises the step of mixing, the at least one input signal and the reflected input signal to thereby generate a mixed signal having at least three components.

Bjork teaches determining a length of the cable under test further comprises the step of mixing the at least one input signal and the reflected input signal to thereby generate a mixed signal having at least three components (see Bjork, column 3 lines 19-25).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Franchville to include the teachings of Bjork because mixing these signals allows the skilled artisan to determine the length of the cable (see Bjork, column 3 lines 23-25).

Referring to claim 6, Franchville further teaches generating the difference of the at least one input signal and the reflected input signal (see Franchville, column 9 lines 29-34), but does riot teach generating the sum of the at least one input signal and the reflected input signal or generating the at least one input signal, wherein the three components form the mixed signal.

Bjork teaches generating the sum of the at least one input signal and the reflected input signal (see Bjork, column 1 lines 19-25); and generating the at least one input signal (see Bjork, column 3 lines 19-22), wherein the three components form the mixed signal (see Bjork. column 3 lines 19-25).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Franchville to include the teachings of Bjork, because mixing these signals allows the skilled artisan to determine the length of the cable (see Bjork, column 3 lines 23-25).

Referring to claim 7, Franchville teaches all the features of the claimed invention except for filtering out high frequency components from the mixed signal.

Richardson teaches filtering out high frequency components from the mixed signal (see Richardson, column 6 lines 61-64).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Franchville to include the teachings of Richardson because filtering allows the skilled artisan to facilitate the analysis of the data (see Richardson, column 6 lines 62-64).

Referring to claim 19, Franchville teaches a cable testing system that utilizes principles of frequency domain reflectometry (FDR) to thereby determine characteristics of a cable under test (CUT) (see Franchville, column 6 lines 32-42), said cable testing system comprising: a voltage controlled oscillator (VCO) for generating an input signal (see Franchville, column 8 lines 54-65); a power divider for receiving the input signal from the VCO and dividing the input signal (see Franchville, Column 8 line 54 - column 9 line 7 and column 7 lines 29-40); a mixer for receiving the input signal from the power divider (see Franchville, column 9 lines 5-7); wherein the CUT also receives the input signal from the power divider, and generates a reflected input signal (see Franchville, column 6 lines 13-26); an analog to digital (A/D) converter for receiving the mixed signal (see Franchville, column 9 lines 47-53), and for generating a digital signal, wherein the digital signal contains a signal that is dependent upon a frequency of the input signal, a length of the CUT, and of a point of termination of the CUT (see Franchville, column 12 lines 18-25); and a processor for utilizing the digital signal to thereby determine characteristics of the cable under test (see Franchville, column 12 lines 18-25).

Franchville does not teach a mixer which receives the input signal and the reflected input signal to thereby generate a mixed signal having at least two components or filtering out high frequency components.

Bjork reaches a mixer which receives the input signal and the reflected input signal to thereby generate a mixed signal having, at least two components (see Bjork, column 3 lines 19-25).

Richardson teaches filtering out high frequency components therefrom (see

Richardson, column 6 lines 61-64).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Franchville to include the teachings of Bjork because mixing these signals allows the skilled artisan to determine the length of the cable (see Bjork, column 3 lines 23-25) and to further include the teachings of Richardson because filtering allows the skilled artisan to facilitate the analysis of the data (see Richardson, column 6 lines 62-64).

Referring to claim 20, Franchville teaches that the cable testing system further comprises a computer, wherein the computer controls the VCO (see Franchville, column 8 lines 54-65) and performs calculations to thereby determine the characteristics of the cable under test (see Franchville, column 5lines 53-57).

Referring to claim 21, Franchville teaches a directional coupler for receiving the reflected input signal from the CUT; and an amplifier for receiving the reflected input signal to the mixer (see Franchville, column 9 lines 17-34).

6. Claims 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Franchville (U.S. Patent No. 5,994,905) in view of Bjork et al. (U.S. Patent No. 5,128,619) (hereinafter Bjork).

Referring to claim 23, Franchville teaches all the features of the claimed invention except that determining a length of the cable under test further comprises the

step of mixing the at least one input signal and the reflected input signal to thereby generate a mixed signal having at least three components.

Bjork teaches that determining a length of the cable under test further comprises the step of mixing the at least one input signal and the reflected input signal to thereby generate a mixed signal having at least three components (see Bjork, column 3 lines 19-25).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Franchville to include the teachings of Bjork because mixing these signals would have allowed the skilled artisan to determine the length of the cable (see Bjork, column 3 lines 23-25).

Referring to claim 24, Franchville further teaches generating the difference of the at least one input signal and the reflected input signal (see Franchville, column 9 lines 29-34), but does riot teach generating the sum of the at least one input signal and the reflected input signal or generating the at least one input signal, wherein the three components form the mixed signal.

Bjork teaches generating the sum of the at least one input signal and the reflected input signal (see Bjork, column 1 lines 19-25); and generating the at least one input signal (see Bjork, column 3 lines 19-22), wherein the three components form the mixed signal (see Bjork. column 3 lines 19-25).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Franchville to include the teachings of Bjork, because mixing

these signals allows the skilled artisan to determine the length of the cable (see Bjork, column 3 lines 23-25).

7. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Franchville (U.S. Patent No. 5,994,905) in view of Bjork et al. (U.S. Patent No. 5,128,619) (hereinafter Bjork) and further in view of Richardson (U.S. Patent No. 6,016,464).

Referring to claim 25, Franchville teaches all the features of the claimed invention except for filtering out high frequency components from the mixed signal.

Richardson teaches, filtering out high frequency components from the mixed signal (see Richardson. column 6 lines 61 -64).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Franchville to include the teachings of Richardson because filtering allows the skilled artisan to facilitate the analysis of the data (see Richardson, column 6 lines 62-64).

Double Patenting

8. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in

scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

Claims 1-34 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 1-18 and 21-36 of copending Application No. 10/190314. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

(a) Richardson teaches a method and system for characterizing terminations in a local area network.

(b) Fields et al. teach a swept frequency domain reflectometry enhancement.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mary Kate B Baran whose telephone number is (703) 305-4474. The examiner can normally be reached on Monday - Friday from 8:00 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc S Hoff can be reached on (703) 308-1677. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

MKB

MARC S. HOFF
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800